ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
October 29, 2020, 9:00 A.M. – 11:00 A.M.
VIA TEAMS

Present:	Carol Aldrich	Mark Dionise	Kristin Schuster
	Mark Bott	Jason Gutting	Brad Wieferich
	Gregg Brunner	Tony Kratofil	Hal Zweng
	Matt Chynoweth	Ryan Mitchell	
Absent:	Rebecca Curtis	Brandy Solak	Gorette Yung
	Mark Geib	Will Thompson	
Guests:	Curtis Bleech	Linda Burchell	Robert Green
	Mary Bramble	David Gauthier	Casey White

OLD BUSINESS

1. Approval of the September 17, 2020 Meeting Minutes – Tony Kratofil

   ACTION: Approved

2. Michigan Department of Transportation (MDOT) New Materials and Products – Jason Gutting

   a. New Material Monthly Report of Data

      - Number of Submittals Received
      - Number of Submittals Under Review by Subject Matter Expert (documentation and/or product review, dialogue with manufacturer, etc.)
      - Number of Submittals Being Field Reviewed, Tested, or Engaged with a Pilot Effort
      - Number of Submittals in the Special Provision Development Phase
      - Number of Submittals Approved (approval by steering committee)
      - Number of Submittals Rejected

   ACTION: For information only

NEW BUSINESS

1. Safety Topic: Snow Blower Safety – Mark Dionise

   <See Appendix A at end of document>

   ACTION: For Information Only

2. City of Port Huron, Hancock Street (I-69BL) Road Diet – Linda Burchell

   Issue Statement – History of lane usage confusion (turning from both lanes, etc.).

   Major Issue(s) – Local street to the east and west of this trunkline section are three-lane roadways.

   Background/History – The city of Port Huron received a complaint from a parent of an elementary student. The school is located west of this section on a local street. The city/MDOT has received prior traffic complaints. MDOT proposed a road diet to clear up lane use designations. The city council provides a resolution of support. There was no controversy in the public meeting.

   Recommendation(s) – Propose conversion of 500+ foot section of Hancock Street (I-69BL) in the city of Port Huron from a four-lane section to a three-lane section (road diet) to be consistent with the local street to east and west. Lane use designated.

   Status – New traffic signal to accommodate change. Will have completed concrete patches on pavement via maintenance to improve roadway condition, and region pavement marking contract to make road diet changes with markings.

   ACTION: For Information Only

3. Conversion of Four Inch Non-freeway Lane Line and Centerline Markings to Six Inch – Mary Bramble

   Subject/Issue – Conversion of four-inch non-freeway lane line and centerline markings to six-inch.

   Issue Statement – With the advent of connected and autonomous vehicles (CAVs), national pavement marking guidance and requirements are changing. MDOT will need to adapt to the guidance, including the proposed Manual on Uniform Traffic Control Devices language requiring a six-inch minimum width for longitudinal pavement markings.

   Major Issue(s) – With the upcoming MUTCD changes, MDOT will need to change some of the standards to comply. However, there are some barriers to doing so. The contractor's equipment is currently set as a three-gun system to place our existing patterns of four-inch

centerline markings. Changing to six-inch lines with the same overall centerline width will require a change to a two-gun system. Anywhere we currently have a solid and broken line in combination will not be compatible with the new system, and the broken portion of the combination line will need to be removed. The cost for the one-time removal will need to be borne, but also the increased cost to stripe and maintain the lines at six-inch rather than four-inch.

Per the proposed MUTCD language, all roadways with a posted speed limit of 45 mph or above would need to change to six-inch lane line and centerline width. Breaking down MDOT's roadways by speed limit there are approximately 3,800 miles of freeway which have already been converted to six-inch lane lines. For non-freeway routes posted 45 mph or above, MDOT is looking at approximately 7,400 miles that need conversion. What would not need to be converted due to posted speed limit is only roughly 890 miles, a relatively small quantity. This small portion of the roadway network would require the contractors to maintain two different gun setups and for MDOT to figure out how to transition between the different marking types and maintain more complicated logs.

Background/History – Historically, a four-inch width was used for all lane lines and edge lines. In the mid-2000s, MDOT upgraded the edge lines on all routes to a six-inch width, as research showed a safety benefit for doing so. Since then the line widths remained consistent until this year, when freeway lane lines were widened to six inch in response to the upcoming CAV requirements. Now four inch is only placed as non-freeway centerlines and lane lines, but they will need to be widened as well for the coming changes. In addition to benefiting the CAVs, widening the markings to six inch will also benefit the human driver with regards to increased visibility, which was demonstrated by the research on wider edge lines.

Recommendation(s) – As part of the Annual Pavement Marking Program, convert all non-freeway four inch to six inch over a four-year period from 2021-2024, including those roadways with posted speed limits less than 45 mph. Revise pavement marking standards to reflect this change and adopt said change as part of the Road and Bridge Design Programs starting in FY 2022.

2021: Stripe all white non-freeway lane lines as six-inch with the annual striping projects. Additional cost of approximately $290,000, which the program can absorb due to a template increase received for fiscal year (FY) 2021.

2022: Remove the broken line from solid-broken combination lines in North, Bay, and University Regions and place all non-freeway lane lines and centerlines in these Regions as six-inch. Maintain white lane lines at six inch in all other regions. Additional cost of approximately $1,430,000, which can be funded by a $500,000 template increase being received for FY 2022 and by setting up small regionwide durable projects for only a few regions rather than all of them (getting it on a rotation rather than a small project for each region each year).
2023: Remove the broken line from solid-broken combination lines in Superior and Metro Regions and place all non-freeway lane lines and centerlines in these Regions as six-inch.

Maintain previously converted six inch in all other regions. Additional cost of approximately $1,465,000, which can be funded by the provisions made in FY 2022.

2024: Remove the broken line from solid-broken combination lines in Grand and Southwest Regions and place all non-freeway lane lines and centerlines in these regions as six-inch. Maintain previously converted six inch in all other regions. Additional cost of approximately $1,650,000, can be funded by the provisions made in FY 2022.

2025 onward: Maintain all converted lines at six-inch width. Approximate annual cost of $1,300,000 which can be funded by the provisions made in FY 2022.

Status – We have already moved to six-inch lane lines for freeways based on the proposed MUTCD language but have not yet started to change over non-freeway routes due to the issues noted above.

ACTION: Approved

4. Use of Sinusoidal Rumble Strips (aka "Mumble Strips") – Mary Bramble/Casey White

Subject/Issue – Use of sinusoidal rumble strips, also known as "mumble strips".

Issue Statement - A frequently received complaint from residents is that our rumble strips are too loud and a nuisance to their everyday living. Rumble strips provide motorists with critical delineation and information, so if they were omitted or removed for the sake of the residents, the safety of the motoring public would be significantly decreased.

Major Issue(s) – Traditional-style rumble strips have been placed around the country with similar configurations for decades without any major changes. Over that time traffic volumes, property development, speed limits, and vehicle types have all undergone changes. The noise caused by vehicles contacting the rumble strips from drifting or performing passing maneuvers has generated complaints from businesses and residents located along roadways where the rumble strips are installed. Rumble strips have proven to be a highly effective countermeasure for many crash types so omitting or removing them is not a good option to satiate the complaints.

Background/History – Traditional style rumble strips have been the standard for decades, but as their installation has increased over time so have the complaints they generate. With omission or removal not being a good plan of action, a different configuration of rumble strip was desired to maintain the safety benefits while reducing the exterior noise generated to help address the issues of the adjacent landowners. In response to this situation, several states began working with a sinusoidal-shaped pattern that seemed promising. Minnesota took the lead in recent years with research on the subject, including an optimization study to determine which of several configurations (different depths, widths, wavelengths) provided the best alert to the drivers while minimizing exterior noise from vehicles contacting the strips.

Using the recommended sinusoidal design from the optimization study MDOT began to pilot the design in Michigan in late 2018. Installations have been completed in most regions, with the Pavement Marking Unit travelling to the sites for noise evaluations. More than a dozen sites have been successfully evaluated, including a noise comparison of traditional and sinusoidal strips on similar pavements at various speeds.

Recommendation(s) – Maintain a pilot status for freeway shoulders, as no sites have been installed or evaluated to date. Adjacent land use must be considered for whether the noise is impacting nearby landowners.

Make sinusoidal strips the standard for non-freeway shoulders, following the current cyclical pattern and 12-inch width at a 12-inch offset. Have allowances for using a zero inch offset for very narrow paved shoulders (three feet or less) or narrow paved shoulders (less than six feet) with bicycle traffic, and to use an eight inch width where both the lanes and shoulders are paved narrow (11 feet or less and three feet or less, respectively).

Have centerline sinusoidal strips as an option in our standard 16-inch width. Useable where there is a history of noise complaints from previously installed traditional centerline rumble strips or a potentially high frequency of passing movements near residential properties. Maintenance must be consulted prior to installation due to possible impacts to salt placement and use.

Have edge line sinusoidal strips (rumble in conjunction with edge line marking) as an option in eight-inch width. Useable where the paved lanes are large enough (greater than 11 feet) to reduce the likelihood of nuisance strikes and there is a need to maintain 100% of the paved shoulder width due to bicycle traffic or other factors. Edge line strips would be placed with the same cyclical pattern as non-freeway shoulder.

Status – Minor modifications to the approved special provision in place from the pilot projects, revise the standard plan, and evaluate pilot freeway installations. Continue to monitor the existing and the several more scheduled installations.

ACTION: Approved

5. Revised Underdrain Outlet Pilot Projects: JN 111073–I-275 Reconstruction and JN 106587–I-196 Reconstruction – Robert Green

Issue Statement – Current design standards are insufficient to allow proper and long-term drainage of the pavement structure. This issue is going to be exasperated with the predicted higher water levels in our lakes and rivers. A revision to the Standard Plan (SP) for underdrain outlets, R-80 series, is recommended.

Major Issue(s) – Currently there is little to no design/engineering in the underdrain system that is installed with our reconstruction projects. It is often left up to the contractor to install the underdrains and outlets at their discretion. This often results in outlets being installed at

or near the ditch elevation. With the passing of a few years, these outlets are quickly overtaken by vegetation and often have back water flowing into them, plugged, and or buried. The underdrain system no longer works as designed and keeps the pavement structure saturated decreasing its effective strength. This results in decreased pavement life and greater investment in performing maintenance on the pavement sooner than expected.

Background/History – A proposed design was presented to the EOC in February of 2020 and verbal approval to continue design was given. The EOC commented to begin to seek pilot projects as well.

The underdrain committee has completed the design and presented it to several internal and external groups including Statewide Design Alignment Team, Statewide Construction Alignment Team, Internal Pipe Operations Committee, Joint Pipe Operations Committee, Michigan Concrete Association, and the Michigan Infrastructure and Transportation Association (MITA). MITA recently finished their review of the specification and detail. Consensus feedback received from MITA was in opposition of the change. However, review of their comments revolves around time and cost, which can be managed with the bid.

Recommendation(s) – Seeking approval to move forward with a pilot projects scheduled for 2021 construction. Current pilots identified are JN 111073 – I-275 reconstruction and JN 106587 – I-196 reconstruction. The Bay Region has also expressed interest as well.

Status – Currently waiting for final approval of 2012 SP from specification unit. A 2020 version of the SP will be submitted for approval as well.

ACTION: For Information Only

6. Manual for Michigan Test Methods: MTM 319-20 Revision – Curtis Bleech

Issue Statement – Request approval of the Manual for Michigan Test Methods (MTM):
- MTM 319-20: Determination of Asphalt Content from Asphalt Paving Mixtures by the Ignition Method.

Major Issue(s) – Each new or revised (major change) test method is reviewed by the Construction Field Services Division prior to submittal to the EOC for final approval.

Background/History - MTM 319-20: Change in test method has been modified to state the testing procedures more accurately and to promote uniformity during the processes.

Recommendation(s) – Approve MTM 319-20

Status – New Submittal

ACTION: Approved

7. Guidance Document (GD) 10229 Continuing Education for Professional Engineers and Surveyors Update – Kristin Schuster

   Subject/Issue update to GD 10229 Continuing Education for Professional Engineers and Surveyors.

   Issue Statement – Needed to allow for other documentation methods for virtual activities.

   Major Issue(s) –The GD needed to include other options beyond certificate or stamp to document attendance for continuing education hours (CEH) approved activities. MDOT needed other methods for virtual activities. This version allows a coordinator to utilize attendee log information from TEAMS live/TEAMS sessions.

   Additionally, edits were made to include a Bureau of Bridges and Structures representative on the team. Other edits were minor in nature.

   Background/History - MDOT provides CEH based on the review of the activity by this team. This GD has been in place since 2014 with minor changes.

   Recommendation(s) – Approval of updated GD 10229

   ACTION: Approved

Digitally signed by:
Carol Aldrich
Date: 2020.11.30
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Carol Aldrich, Secretary
Engineering Operations Committee

RA:lrb

cc:

EOC Members	C. Libiran (MDOT)	R. Brenke (ACEC)
Meeting Guests	R. Lippert (MDOT)	G. Bukoski (MITA)
Region Engineers (MDOT)	L. Mester (MDOT)	D. DeGraaf (MCA)
Assoc. Region Engineers (MDOT)	C. Newell (MDOT)	C. Mills (APAM)
TSC Managers (MDOT)	T. Schafer (MDOT)	D. Needham (MAA)
L. Doyle (MDOT)	R. Jorgenson (FHWA)	M. Ackerson-Ware (MRPA)

Appendix A

DRIVE SLOW ON ICE & SNOW

MICHIGAN OHSP Office of Highway Safety Planning

WINTER DRIVING SAFETY TIPS

DON'T BLAME THE WEATHER! DRIVE SLOW ON ICE & SNOW

Most winter driving crashes are not caused by the weather, but by drivers' failure to adjust to road conditions. "Drive slow on ice & snow" is the theme for our winter driving safety program, and our #1 tip for staying safe on wintry roads. Here's why:

- Most winter driving crashes can be attributed to drivers going too fast for the roadway conditions. When this happens, drivers can lose control, leave their lane, or even leave the roadway.

- On snowy and/or icy roads, it can take up to **ten times longer** to stop your vehicle. Slowing down and allowing more room between your vehicle and the one ahead of you gives you more time to react and brake, thus reducing your crash risk.

- Michigan speed limit laws require drivers to move at a speed that is "reasonable and proper" for the road conditions. This means that even if you are driving at or under the posted speed limit, you could still get a speeding ticket if the road conditions make that speed unreasonable for safe driving.

- By making adjustments in speed and handling when road conditions are bad, you can take charge of your winter driving safety.

- Don't use cruise control on ice and snow. If your car skids, the cruise control will accelerate to maintain a constant speed — spinning your wheels even faster and increasing the chance you will lose control of your vehicle.

BE PREPARED

Before you go, take the time to prepare your car for safe winter driving.

- Keep your car well maintained. Have a mechanic check fluid levels (oil, wiper fluid, antifreeze, etc.), as well as your battery, ignition system, lights, brakes, heater/defroster, wipers and tires.

- Remove all snow and ice from your vehicle, especially from all windows, the windshield, mirrors, headlights and taillights. Snow and ice can dim the beams of lights and reduce visibility.

- Always keep your gas tank at least half full to avoid fuel line freeze-up.

- Check both current and forecasted weather conditions along your route.

- Stock your car with winter driving supplies:
  - *Auto Emergency Kit*
  - Flashlight with extra batteries
  - Shovel
  - Snow brush and scraper
  - Booster cables
  - Bag of sand or kitty litter for traction under tires
  - Cell phone charger
  - Bottled water, food, necessary medicine

FOLLOW THESE WINTER TIRE SAFETY TIPS

Winter tires are made of a softer rubber compound than summer or all-season tires, with thin cuts in the tread. This gives them a better grip on the road, which makes them **the safest choice for driving in winter**. In fact, winter tires can help you stop up to 50% faster on snowy or icy roads.

- **Regularly check your tire pressure in winter.** Tire pressure drops as temperatures do, so it's important to make sure your tires are adequately inflated.

- **Use the penny test to check tire treads.** Insert a penny, Lincoln's head down, into the tread of your tire. If you can see Abe's entire head, there's not enough tread left to drive safely. (Tires should have at least 1/8" of tread for safe driving.)

- **Get tires rotated every 5,000 to 8,000 miles** to help them wear more evenly.

KEEP PEDESTRIANS & PASSENGERS SAFE

Drivers aren't the only ones at greater risk in winter weather.

- Stopping distances can be up to 10 times greater on ice and snow, so drive slowly and stay alert for pedestrians, especially at intersections and crosswalks.
- Be aware that pedestrians can be obscured by snowbanks, or can be difficult to see in low-light winter weather.
- Don't shovel or plow snow into sidewalks. This can force pedestrians to walk in the road.
- Make sure you and all your passengers wear their seat belts. In 2017 alone, seat belts saved an estimated 14,955 lives in the U.S. and could have saved an additional 2,549 people — if they had buckled up.
- The lap and shoulder belt should be snug across the hips and chest. Never put the shoulder belt behind your back.
- Children should be buckled into car seats or booster seats until they are at least 4' 9" tall. Even when they are big enough to use the adult seat belt, they should ride in the back seat until they are 13 years of age or older.

  For car seat guidelines, visit https://www.nhtsa.gov/equipment/car-seats-and-booster-seats
- Don't dress infants or toddlers in puffy coats or snowsuits. The extra bulk keeps the harness straps from fitting tight enough against baby's chest. Dress your little one in lighter layers to keep the straps snug, then cover them with a blanket or coat.

DRIVE SAFELY NEAR SNOWPLOWS

When sharing the road with a snowplow, here are ways to stay safe.

- Be aware that snowplows move slowly, make wide turns, and stop frequently.
- It's illegal in Michigan to pass a snowplow on the right. And while it's not illegal to pass on the left, you should do so with extreme caution.
- If you are driving behind a snowplow, maintain 6 to 10 car lengths between your vehicle and the snowplow. If you follow too closely, the driver may not be able to see you. Your vision could also be obstructed by a "snow cloud" created by the plow.
- A snowplow is considered an authorized vehicle for purposes of Michigan's Move Over law. If you see a stationary snowplow on the side of the road, you **must reduce your speed** to at least 10 mph slower than the speed limit and move over to an open lane. If this is not possible, slow down and pass, allowing as much room as possible.

KNOW HOW TO HANDLE EMERGENCIES

Despite all your precautions, you find yourself stopped or stalled on the road. Don't panic. Follow these safety rules:

- Stay with your car and don't overexert yourself.
- Put bright markers on the antenna or windows and keep the interior dome light turned on.
- If you must run your car's engine to keep warm, be certain the exhaust pipe is clear of snow, ice or dirt, and check it periodically. Run the vehicle for only 5-10 minutes each hour and be sure to open the windows slightly for ventilation. Keeping the car running continuously could lead to asphyxiation from carbon monoxide poisoning.

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